

REMARKS

In an Office Action mailed on December 2, 2005, objections were made to claims 31 and 38; claims 29-32 and 36-40 were rejected under 35 U.S.C. § 112, second paragraph; claims 29, 31-35 and 39 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker and Yanai; claim 30 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker and Yanai and further in view of Woywood; claims 36 and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker and Yanai and further in view of Zhou; claim 37 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker, Yanai, Zhou and Woywood; and claim 40 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd, Baker, Yanai, Zhou and Allen. Claims 31 and 38 have been cancelled. Independent claims 29 and 36 have each been amended to recite an analog-to-digital converter that converts an analog integrated signal into a digital signal, thereby providing an antecedent basis for the "digital signal" and therefore, overcoming the § 112 rejections of claims 29-32 and 36-40. The § 103 rejections are discussed below.

§ 103 Rejections of Claims 29, 30, 32, 36, 37, 39 and 40:

Independent claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker and Yanai. Independent claim 36 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker, Yanai and Zhou.

As amended, the imager of independent claim 29 and the camera of independent claim 36 each includes (for each pixel sensor) a sample and hold circuit and analog-to-digital converter. The sample and hold circuit integrates the analog signal (that is provided by each pixel sensor) to generate an analog integrated signal. The analog-to-digital converter converts the analog integrated signal into a digital signal.

Contrary to the limitations of amended independent claim 29, Elabd does not teach or suggest an analog-to-digital converter for each of its pixel sensors. Likewise, Baker fails to teach or suggest such an arrangement, as Baker does not even discuss the analog-to-digital conversion of its signals.

The Examiner relies on Yanai's disclosure of an analog-to-digital converter 11 for each of its pixel sensors, as depicted in Fig. 34 of Yanai. Office Action, 4, 7 and 8. Referring to Fig. 34,

Yanai discloses a sample and hold circuit 10 that is disposed between a sensor 1 and the analog-to-digital converter 11. Integration for the sensor 1 is achieved using the capacitor 103 of the sensor 1. *See, for example*, lines 48-50 in column 21 of Yanai.

Thus, the sensor 1 integrates via a capacitor 103; the sample and hold circuit 10a samples the resultant integrated voltage; and the analog-to-digital converter 11 converts the integrated voltage from the capacitor 103 into a digital signal.

Yanai does not, however, teach or suggest using a sample and hold circuit, such as the sample and hold circuit 10, for purposes of integrating an analog signal that is provided by the sensor 1. As such, Yanai fails to teach or suggest the analog-to-digital converters and sample and hold circuits of independent claims 29 and 36. Neither Elabd, Baker nor Zhou teach or suggest the missing claim limitations.

Claims 30, 32, 37, 39 and 40 are patentable for at least the reason that these claims depend from allowable claims. Therefore, Applicant respectfully requests allowance of claims 29, 30, 32, 36, 37, 39 and 40.

§ 103 Rejections of Claims 33-35:

Independent claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Elabd in view of Baker and Yanai.

As amended, the method of independent claim 33 includes integrating an analog signal from a pixel sensor in a sample and hold circuit to generate a first analog integrated signal, sampling the first integrated signal to generate a first sample integrated signal, converting the first sample integrated signal into a first digital signal and storing the first digital signal in one of two digital storage locations associated with the pixel sensor. As amended, the method of independent claim 33 also includes integrating the analog signal in the sample and hold circuit to generate a second analog integrated signal, sampling the second analog integrated signal to generate a second sample integrated signal, converting the second sample integrated signal into a second digital signal and storing the second digital signal in another one of the storage locations.

See discussion of independent claims 29 and 36 above. In particular, Yanai fails to teach or suggest integrating an analog signal that is provided by a pixel sensor in a sample and hold circuit. Neither Elabd nor Baker supplies the missing claim limitations.

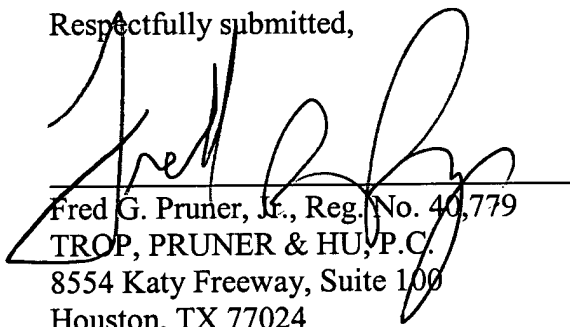
Claims 34 and 35 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, for at least the reasons that are set forth above, Applicant respectfully requests allowance of claims 33-35.

CONCLUSION

In view of the foregoing, withdrawal of the §§ 103 and 112 rejections and a favorable action in the form of a Notice of Allowance are requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (ITL.0061US).

Respectfully submitted,

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